AMENDMENTS TO THE CLAIMS:

Please replace the claims with the following rewritten listing.

1. (Currently Amended) Method for reconstructing multidimensional objects from one- or two-dimensional image data, comprising: ~~especially from ultrasound image data, by means of recordings (7) of~~

recording one-or two-dimensional partial image areas ~~(6)~~ of ~~the~~ an object ~~(1),~~; and

using ~~wherein the~~ absolute positions of ~~the~~ individual partial image areas ~~(6)~~ in space and/or ~~the~~ relative positions of the individual partial image areas ~~(6)~~ to each other ~~are used~~ along with ~~the~~ one- or two-dimensional image information ~~(13)~~ of the individual partial image areas ~~(6)~~ for generating one- or two-dimensional image data~~,~~

wherein ~~characterized in that~~ a first group of space elements ~~(15a)~~ is generated in a multidimensional voxel space ~~(9)~~ from first space elements ~~(10a)~~which contain multidimensional image information and touch or intersect planes or lines of the partial image areas ~~(6)~~ by ~~means of~~ the one- or two-dimensional image data~~,~~; ~~and that~~

wherein a second group of space elements ~~(15b)~~ is generated in the multidimensional voxel space ~~(9)~~ from second space elements ~~(10b)~~ by ~~means of~~ an information transformation from the multidimensional image information of the first group of space elements ~~(15a)~~; and

wherein said information transformation includes at least one search beam running from each first space element along a pre-determinable multidimensional direction vector, thereby defining those second space elements determined by the multidimensional image information of that first space element which forms a starting point of the search beam.

2. (Currently Amended) Method according to claim 1, ~~characterized in that~~ wherein the multidimensional image information of each first space element ~~(10)~~ is determined by ~~means of that~~ one- or two-dimensional image information ~~(13)~~ which exists at ~~the~~ a particular interface/point of contact of ~~the~~ a respective first space element ~~(10a)~~ with ~~the~~ a respective plane or line of ~~a~~ the partial image area ~~(6)~~.

3. (Currently Amended) Method according to claim 1, ~~characterized in that the~~ wherein a spatial and/or chronological distance ~~(x)~~ from each second space element ~~(10b)~~ to the next first space element ~~(10a)~~ of the first group of space elements ~~(15a)~~ is determined, and ~~that~~ the multidimensional image information of each second space element ~~(10b)~~ is determined by ~~means of~~ the multidimensional image information of ~~the~~ a spatially and/or chronologically nearest first space element ~~(10a)~~.

4. (Currently Amended) Method according to claim 3, ~~characterized in that~~ wherein the multidimensional image information of each second space element ~~(10b) will~~ is not ~~be~~ determined when the spatial and/or chronological distance ~~(x)~~ to the nearest first space element ~~(10a)~~ is larger than a pre-determinable maximum spatial and/or chronological distance ~~(x_{max} or t_{max})~~.

5. (Currently Amended) Method according to claim 4, ~~characterized in that~~ wherein the multidimensional image information of the spatially and/or chronologically nearest first space element ~~(10a)~~ is used as multidimensional image information of each second space element ~~(10b)~~ lying within ~~the~~ a maximum spatial and/or chronological distance ~~(x_{max} or t_{max})~~ to a first space element ~~(10a)~~.

6. (Currently Amended) Method according to claim 3, ~~characterized in that~~wherein the spatial and/or chronological distance ~~(x,t)~~ and a reference number for the plane or line of the partial image area ~~(6), which was~~ used to determine the multidimensional image information of the nearest first space element ~~(10a)~~, is ~~also~~ stored as multidimensional image information of each second space element ~~(10b)~~.

7. (Currently Amended) Method according to claim 1, ~~characterized in that~~ wherein the spatial and/or chronological distances ~~(x_i, t_i)~~ from each second space element ~~(10b)~~ to two or more first space elements ~~(10a)~~ of the first group of space elements ~~(15a)~~ are determined, and ~~that~~ the multidimensional image information of each second space element ~~(10b)~~ is determined by ~~means of~~ the multidimensional image information of a

pre-determinable number of spatially and/or chronologically nearest first space elements ~~(10a)~~.

8. (Currently Amended) Method according to claim 7, ~~characterized in that~~wherein the multidimensional image information of each second space element ~~(10b)~~ is determined by ~~means of~~ the multidimensional image information, weighted on ~~the basis of~~ the different spatial and/or chronological distances ~~(x_i, t_i)~~, of a pre-determinable number of first space elements ~~(10a)~~.

9. (Cancelled)

10. (Currently Amended) Method according to claim ~~9~~1, ~~characterized in that~~wherein the search beam ~~(14)~~ has ~~its~~ a chronological and/or spatial starting point ~~(16)~~ on the plane or line of the partial image area ~~(6) which was~~ used to determine the multidimensional image information of the first space element ~~(10a)~~, and ~~that~~ the search beam ~~(14)~~ has a maximum spatial and/or chronological length ~~(11)~~ along the pre-determinable multidimensional direction vector ~~(Φ)~~.

11. (Currently Amended) Method according to claim ~~9~~1, ~~characterized in that~~wherein the second space elements ~~(10b)~~ are ~~also~~ determined by ~~means of~~ the multidimensional image information of another first space element ~~(10a)~~ of the first group of space elements ~~(15a)~~, which constitutes a target point ~~(19)~~ which is hit by the search beam ~~(14)~~.

12. (Currently Amended) Method according to claim 11, ~~characterized in that~~wherein the second space elements ~~(10b)~~ are determined by ~~means of the~~ weighted multidimensional image information of the starting point ~~(16)~~ and the target point ~~(19)~~, wherein the weights orientate themselves at ~~the~~ multidimensional distances of each second space element ~~(10b)~~, lying on the search beam ~~(14)~~, to the starting or target point ~~(16, 19)~~.

13. (Currently Amended) Method according to claim ~~9~~1, ~~characterized in that~~wherein the second space elements ~~(10b)~~ are determined in a first step by ~~means of~~ the multidimensional image information of that first space element ~~(10a)~~ which forms the starting point ~~(16)~~ of the search beam ~~(14)~~, and ~~that~~ the second space elements ~~(10b)~~ are weighted in further steps by ~~means of~~ multidimensional image information of further first space elements ~~(10a)~~ which form starting points ~~(16)~~ of search beams ~~(14)~~ which also penetrate the second space elements ~~(10b)~~, wherein the weights orientate themselves at ~~the~~ multidimensional distances of each second space element ~~(10b)~~ to the respective starting points ~~(16, 19)~~.

14. (Currently Amended) Method according to ~~th~~ claim 1, ~~characterized in that~~wherein the object ~~(1)~~ is reconstructed and represented multidimensionally by ~~means of~~ the multidimensional voxel space ~~(9) consisting of~~comprising the first and second group of space elements ~~(15a, 15b),~~ and/or ~~that~~ wherein parts of the reconstructed object ~~(17)~~ are represented by ~~means of~~ variable sectional planes ~~(18)~~.

15. (Currently Amended) Method according to claim 14, ~~characterized in that~~wherein the reconstructed object ~~(17)~~ or parts thereof ~~will be~~are represented or equipped with predeterminable characteristics like colo~~u~~r or resistance.

16. (Currently Amended) Method according to claim~~s~~ 14, ~~characterized in that~~wherein certain parts of the multidimensional voxel space ~~(9)~~ are marked and sampled for representation on one side of an intersectional plane ~~(18)~~ in order to visualize certain parts of the reconstructed object ~~(17)~~.

17. (Currently Amended) Method according to claim 14, ~~characterized in that~~wherein the multidimensional voxel space ~~(9)~~ is sampled by ~~means of~~ an intersectional plane ~~(18)~~ into at least two halves ~~(9a, 9b)~~ to visualize certain parts of the reconstructed object ~~(17)~~, and ~~that~~ wherein the intersectional plane and/or the at least two halves ~~(9a, 9b)~~ are pivotable~~/~~ and/or rotatable and/or displaceable in different multidimensional directions.

18. (Currently Amended) Device for reconstructing multidimensional objects from one- or two-dimensional image data, ~~particularly from ultrasound image data,~~ on ~~the~~ basis of recordings ~~(7)~~ of one- or two-dimensional partial image areas ~~(6)~~ of ~~the~~ an object ~~(1)~~, ~~wherein~~ comprising:

first storage means for storeing ~~the~~ absolute spatial and/or chronological positions of the individual partial image areas ~~(6)~~ and/or ~~the~~ relative spatial and/or chronological positions of the individual partial image areas ~~(6)~~ to each other along with ~~the~~ one- or two-dimensional image information ~~(13)~~ of the individual partial image areas ~~(6)~~ for generating one- or two-dimensional image data, ~~characterized in that;~~

second storage means for storeing a first group of space elements ~~(15a)~~ which can be generated in a multidimensional voxel space ~~(9)~~ from first multidimensional image information containing first space elements ~~(10a) which~~ touching or intersecting planes or lines of partial image areas ~~(6)~~ by ~~means of~~ the one- or two-dimensional image data~~,~~; and ~~that~~

third storage means for storeing a second group of space elements ~~(15b) which can be~~ generated in the multidimensional voxel space ~~(9)~~ from second space elements ~~(10b)~~ by ~~means of~~ an information transformation from the multidimensional image information of the first group of space elements ~~(15a)~~.

19. (Currently Amended) Device according to claim 18, ~~characterized in that~~wherein the object ~~(1) can be~~is reconstructed and represented ~~by means of~~ in a display by spanning the multidimensional voxel space ~~(9)~~ by ~~means of~~ the first and second group of space elements ~~(15a, 15b)~~.

20. (Currently Amended) Device according to claim 18, ~~characterized in that~~wherein calculation means carry out the information transformation from ~~the~~ data of the first and second storage means and store the results in the third storage means.

21. (Currently Amended) ~~Use of a method~~ Method according to claim 1 ~~or a device according to claim 18 for the~~ further comprising a multidimensional reconstruction and

representation of an organ~~, especially the~~ comprising a heart of a creature, considering ~~the~~ motion of ~~the~~ a heart.

22. (Currently Amended) ~~Use of a method~~ Method according to claim 1, ~~or a device according to claim 18 for the~~ further comprising performing at least one of transthoracal (TTE), transoesophagic (TEE), ~~or~~and intravascular (IVUS) echocardiography and/or intraductal (IDUS) sonography.

23. (New) Device according to claim 18, configured for a multidimensional reconstruction and representation of an organ comprising a heart of a creature, considering the motion of the heart.

24. (New) A device according to claim 18, configured for at least one of transthoracal (TTE), transoesophagic (TEE), and intravascular (IVUS) echocardiography and/or intraductal (IDUS) sonography.